San Diego could become a bright spot for emerging alternate energy technologies

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Small energy companies that provide increased efficiency or electricity through renewable sources help power many businesses and homes in San Diego County. But some experts say a local fleet of high-tech energy firm's spending money on research and development could do much more than just offer the region more electricity reliability.

They could prove a boon to the local economy - much more than a 550-megawatt natural gas-fired station on the bay or in the desert. Once operational, those plants need as few as 35 employees.

Besides, small businesses that specialize in wind, solar, biomass, and fuel cells create work for a broader range of craftsmen, experts say. For example, electricity generated by solar photovoltaics requires the skills of building trades, such as roofers, electricians, and sheet metal workers who up to now played virtually no role in power production. A report by the Washington, D.C.-based Renewable Energy Policy Project shows that both wind power and photovoltaics create more than 40 percent more jobs than energy derived from coal.

"Megawatt for megawatt, these smaller systems will involve more jobs," said Tim Lipman, executive director of the Center for Interdisciplinary Distributed Energy Research at UC Berkeley. "Energy efficiency systems involve a fair amount of work in getting systems up and going. That is one of the under-recognized benefits of these systems."

Growth rates for wind and solar have risen between 20 percent and 30 percent during the past few years, as compared to the traditional fossil fuel industry, Lipman said. Globally, more distributed generation - on-site power systems was installed than nuclear.

And the UC Berkeley energy research center has found that a number of investment funds have set up portfolios for clean energy technologies. It started happening about two to three years ago, about the time of the California energy crisis.

"That's an interesting development ... that financial markets are taking an interest," Lipman said.

All this bodes well for any region that's interested in positioning itself as the Silicon Valley of developing energy technology firms. That's exactly what the 2002 San Diego Regional Energy Infrastructure Study recommended for the region.

The report shows a local 5-to-1 investment return from energy efficiency measures and distributed generation installations. The study examined three possible economic impacts - low, medium, and high. In the medium scenario, a $3.6 billion investment netted an economic benefit of nearly $18 billion and thousands of new jobs over a 30-year period, the local study estimated.

San Diego seems to be a logical location for developing entrepreneurial energy companies, Lipman said. The city was ground zero for the state's 2000-2001 energy crisis. Greater energy independence is one of Mayor Dick Murphy's top 10 goals. And the region enjoys a fairly high environmental awareness.

But Lipman doesn't see San Diego becoming a large manufacturing center for new energy technologies because the costs here remain high. However, with major universities in town, the region could position itself as a major player on the intellectual property end of developing trends, he said.

* Local Examples

Carlsbad-based So-Luminaire Active Daylighting Systems Corp. serves as an example of one local company that has made inroads into the alternative energy market. The company's robotic skylight uses mirrors to track the sun throughout the day, catching more rays for indoor use. It promises customers up to 90 percent savings in daytime lighting costs.

Government and industrial users remain the company's biggest clients so far. They include several Fortune 500 companies, such as Pepsi. But So-Luminaire officials expect the retail segment to sit up and take notice because a new study suggests that natural daylight improves sales.

So-Luminaire president Jacque Stevens agrees that the emerging energy market is full of opportunity for people who never before thought of working in the power industry. "With this product (So- Luminaire's newest skylight) comes a great opportunity for installers in the construction field," Stevens said.

A local contractor that installs So-Luminaire's; product nationwide recently increased its staff to accommodate the workload, Stevens said. So-Luminaire continues to spend heavily on research and development. In the past two years, the firm has spent more than $1 million fine-tuning its latest skylight model. Stevens sees her client base growing and expects an increased need for subcontractors.

San Diego-based Knight & Carver, a 32-year-old boat building company, provides another example of a firm that sees opportunity in energy. According to county records, Knight & Carver recently retooled its operation to build and recondition wind turbine blades for the growing wind power industry.

Allied Lighting Systems, Inc. of San Diego incorporated in 1999. It started life as a distributor of light fixtures for car lots. Allied officials quickly moved into a new market. They sell energy efficient lighting for highway signs across the nation, providing at least 60 percent electricity savings. That's not to mention maintenance savings for departments of transportation. Allied's light bulbs need to be changed every 20 years, as compared to every four years for most standard lights today.

Through Allied's local research and development, the company became so successful in the highway system and billboard markets that it is moving into the street, tunnel, and freezer lighting segments.

Its billboard business is now international. The company has provided fixtures for companies in Mexico, Central America, Europe, and South Africa.

The company has seen steady growth, said Steven Donner, Allied president and one of three founding shareholders. Although Donner declined to disclose profits at the private firm, he did say revenues were up 70 percent over last year, which has been typical since the company's birth.

To keep costs down, Allied's manufacturing operations remain in Palmdale, where one of the co-inventors lives. Rent costs in San Diego are too high, Donner said.

He feels it would be difficult to draw a number of fledgling R&D energy companies to San Diego, such as city officials have done with the biotechnology industry since the early 1990s.

"I don't necessarily see it being like the pharmaceutical companies, where people are going to invest millions and millions in reflector systems like they do medicine," Donner said. "It's got to be companies with current products and current cash flows that will come here. Energy companies aren't as sexy as biotechs."

In the past few years, locally based SeaWest WindPower has diversified its operation, growing from a company that only builds wind farms to one that also maintains them. Maintenance is a job- intensive and ongoing segment of the wind industry.

Also, earlier this year, SeaWest gave birth to a spinoff company - Prasentia - that is the only firm of its kind worldwide. Prasentia is a wind power information systems business that helps operators track generation and squeeze more efficiency and reliability out of turbines.

Prasentia was quickly drawn into the global market and is expected to turn a profit this year, a rarity for brand new companies. Both SeaWest and Prasentia are San Diego-based,

So-Luminaire's Stevens feels San Diego could grow into the Silicon Valley of power technology. More incentive programs from San Diego Gas & Electric could speed the process, she said. Los Angeles Water & Power has doled out incentives through public goods money it receives from the state. SDG&E hasn't been as active, Stevens said.

"The city of San Diego is working very hard to be a model city for energy efficiency," Stevens said. "The only thing slowing that down is a lack of funds."

Tom Bowers, general manager of Temecula-based Ketch Energy, Inc.'s solar electric division, said that department has experienced 80 percent growth in the past two years. The energy crisis of 2000- 01 did most of the advertising needed for alternative energy companies. State rebates, tax credits, and depreciation allowances give sales a tremendous boost.

If Congress passes an energy bill with a 10 percent federal tax credit for distributed generation, companies dealing in distributed generation would be sitting pretty. "Everyone in our industry is rooting for that," Bowers said.

Besides providing a plus for distributed generation, a federal tax credit for alternative energy would be good for the economy, he said. More labor is needed to support the renewables market. Ketch employs more union electricians trained in installing photovoltaic systems than any other contractor in San Diego right now. The average pay: $30 an hour.

The opportunities are limitless, Bowers said. Europeans dominate the solar electric and wind markets. The Japanese are coming up the ranks in photovoltaics.

"It's a huge opportunity for some American companies to manufacture these things," Bowers said. "Everything is right for San Diego to be a leader, not only for installing but for producing the technology."

* Other Clean-Energy Factors

The San Diego Regional Energy Infrastructure Study holds up Sacramento Municipal Utility District (SMUD\) as an example that shows the positive economic impact of an aggressive energy plan. The utility district started a program in 1992 to gain as much as 650 megawatts of local power by 2000. One megawatt can power about 1,000 California homes.

A report published by the California State University system estimates the impact of SMUD's program:

* Local spending on energy efficiency measures totaled $59 million.

* SMUD avoided spending $45 million to buy power from other regions.

* Regional income increased by $124 million.

* About 880 direct-effect jobs were created.

* Added $22 million to the area's wage-earning households.

According to information from the Renewable Energy Policy Project, 240 megawatts of wind power installed in Iowa in 1998 and 1999 produced 200 six-monthlong construction jobs, and 40 permanent maintenance and operations jobs. The wind farms also brought $2 million per year in tax payments to counties and school districts and $640,000 per year in lease payments to landowners.

Russ Gibbon, who works in a division of the city of San Diego's economic development department, said energy industries already are on the city's radar. Some small, startup companies have put out feelers and have looked for grants in order to move here, Gibbon said.

But the city's existing incentive programs aren't enough to draw emerging energy technology firms to San Diego, he said.

"There's nothing the city can do to attract a segment of the market that doesn't already want to come here," he said.

Like Kyocera Solar, a division of Kyocera Corp. The company's solar division is located in Scottsdale, Ariz. Part of Kyocera Solar's work is done locally and shipped to Arizona, Gibbon said.

Kyocera has expressed interest in moving its solar division or at least a larger part of the work to San Diego, where the company has excess space. The California market for solar products is stronger than Arizona's, Gibbon said, so time-to market is on San Diego's side.

But until the market is driven by external forces - higher energy prices, another crisis, or environmental issues - the city's ability to significantly influence startups to come to San Diego is extremely limited, Gibbon said.